CLAIMS

What is claimed is:

1. A method of treating a liver disease in a subject in need thereof comprising administering to the subject a composition, wherein the composition increases an amount or function of one or more transcription factors selected from the group consisting of PROX1, NR5A2, NR0B2, MTF1, SREBP1, EP300, and POM121C.

2. The method of claim 1, wherein the composition is a vector, and wherein the vector comprises one or more nucleic acids that encode the one or more of PROX1, NR5A2, NR0B2, MTF1, SREBP1, EP300, and POM121C.

3. The method of claim 1, wherein the composition is a vector, and wherein the vector comprises one or more nucleic acids that encode the PROX1 and/or SREBP1.

4. The method of any one of claims 1-3, wherein the one or more nucleic acids are a DNA or a mRNA.

5. The method of any one of claims 1-4, wherein the administration of the composition increases an amount of HNF4α in a nucleus of a hepatocyte in the subject.

6. The method of any one of claims 1-5, wherein the administration of the composition does not increase a total amount of HNF4α in the hepatocyte.

7. The method of any one of claims 1-6, wherein the administration of the composition increases a total amount of HNF4α in the hepatocyte.

8. The method of any one of claims 1-7, wherein the vector further comprises a nucleic acid that encodes HNF4α.

9. The method of any one of claims 1-7, further comprising administering to the subject a vector that comprises a nucleic acid that encodes HNF4α.

10. The method of claim 8 or 9, wherein the nucleic acid encodes HNF4α isoform 2 (P1).

11. The method of claim 8 or 9, wherein the nucleic acid that encodes HNF4α comprises SEQ ID NO:1.

12. The method of any one of claims 1-11, wherein the liver disease is liver fibrosis, liver cirrhosis, liver cancer, or end-stage liver disease.

13. The method of any one of claims 1-12, wherein the liver disease is liver cirrhosis.

14. The method of any one of claims 1-13, wherein the subject is a human.

15. A method of treating a liver disease in a subject in need thereof comprising administering to the subject a composition, wherein the composition decreases an amount or suppresses a function of one or more transcription factors selected from the group consisting of DNAJB1/HSP40, ATF6, ATF4, and PERK.

16. The method of claim 15, wherein the composition is a nucleic acid.

17. The method of claim 16, wherein the nucleic acid is a DNA or a RNA.

18. The method of any one of claims 15-17, wherein the administration of the nucleic acid increases an amount of HNF4α in a nucleus of a hepatocyte in the subject.

19. The method of any one of claims 15-18, wherein the administration of the composition does not increase a total amount of HNF4α in the hepatocyte.

20. The method of any one of claims 15-19, wherein the administration of the composition increases a total amount of HNF4α in the hepatocyte.

21. The method of any one of claims 15-20, wherein the composition further comprises a nucleic acid that encodes HNF4α.

22. The method of any one of claims 15-21, further comprising administering to the subject a vector that comprises a nucleic acid that encodes HNF4α.

23. The method of claim 21 or 22, wherein the nucleic acid encodes HNF4α isoform 2.

24. The method of claim 21 or 22, wherein the nucleic acid that encodes HNF4α comprises SEQ ID NO:1.

25. The method of any one of claims 15-24, wherein the liver disease comprises liver fibrosis, liver cirrhosis, liver cancer, or an end-stage liver disease.

26. The method of any one of claims 15-25, wherein the subject is a human.

27. A composition comprising a vector, wherein the vector comprises one or more nucleic acids that encode one or more transcription factors selected from the group consisting of PROX1, NR5A2, NR0B2, MTF1, SREBP1, EP300, and POM121C, and functional fragments thereof.

28. The composition of claim 27, further comprising another vector comprising a nucleic acid that encodes HNF4α.

29. The composition of claim 28, wherein the nucleic acid that encodes HNF4α comprises SEQ ID NO:1.

30. A method of treating a liver disease in a subject in need thereof comprising administering to the subject a vector that comprises nucleic acid encodes HNF4α isoform 2.

31. The method of claim 30, wherein the nucleic acid comprises SEQ ID NO:1.

32. The method of claim 30 or 31, wherein the liver disease is liver fibrosis, liver cirrhosis, liver cancer, or an end-stage liver disease.

33. The method of claim 32, wherein the liver disease is liver cirrhosis.

34. The method of any one of claims 30-33, wherein the subject is a human.